Yosio Kobayasi*: A brief revision of *Myxomycidium* with a new species

小林義雄*: *Myxomycidium* 属について

(Pl. XVII)

The genus *Myxomycidium* was established by Massee in 1901 with the type species *M. pendulum* collected in Tasmania. In gelatinous consistency, this seemed to be a member of Tremellales, whereas its basidia showed the characteristic of Homobasidiomycetes. Accordingly, he left its systematic position unsettled, with a remark "a remarkable genus without very evident affinities". Since then, no additional species had been found for more than thirty years until Linder made a cytological observations basing on the two new species, *M. nodosum* and *M. guianense*. Even in the second edition of Engler's Natürlichen Pflanzenfamilien (1928), Killermann left this genus among the doubtful genera of Tremellales.

Linder found that the basidia of *M. guianense* are composed of the hypobasidial part and secondarily elongated epibasidial part. Taking this character as phylogenetically important one, he pointed the relationship of *Myxomycidium* to *Vuilleminia*, including the former into the Vuilleminiaceae.

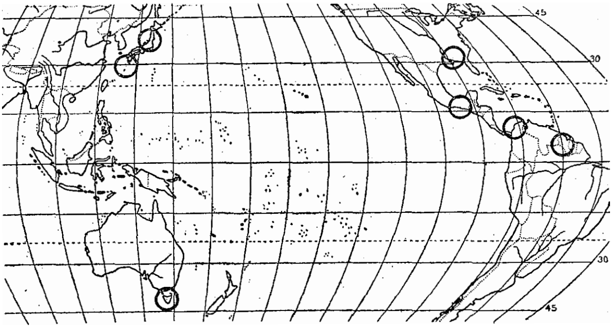

Fig. 1. Distribution of *Myxomycidium*.

In 1938, Martin published the fourth species *M. flavum*, but the expressed no more distinct idea as to the systematic position than that the present genus

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* National Science Museum, Ueno Park, Tokyo. 国立科学博物館.

Tab. 1. Specific characters

	M. limpidum	*M. pendulum*	*M. flavum*
Fructification			
shape	conic-lanceolate, sessile	lanceolate, stalked	lanceolate, stalked
length	5–15 mm	10–15 mm	10–35 mm
colour	hyaline	hyaline or ochraceous	clear-yellow
clamp	+	—	—
Basidia		25–28×5–7 μ	23–46×4.5–6 μ
Sterigmata			
number	2	2 or 4	2 or 4
length	12 μ	2.5–4 μ	3 μ →
Basidiospore	7–9×4.6–5.4 μ	6–7×4.5–5 μ	7–11×3.5–6μ
Locality	Mexico	Tasmania	Colombia

is in the intermediate position between Homobasidiomycetes and Heterobasidiomycetes. In 1950, Corner insisted the present genus to be classified in the Clavariodelphus-series of Clavariaceae. According to him, such species as *Clavulinopsis hastula* in the Clavariaceae show the gelatinous appearance as *Myxomycidium* and the pendulous character is not by geotropism, but through the weight of fruitbody. And, moreover, he doubted if the division of basidia of *Myxomycidium* into the so-called hypobasidium and epibasidium had any morphological significance. Although it is interesting idea that the fruitbody of *Myxomycidium* is not truly inverted but ageotropic, this can never explain the existence of pendulous fruitbody of *M. limpidum* which is sessile and attached to the substratum by the broad base. As for the division of basidium into hypobasidium and epibasidium, the writer considers this to be the important phylogenetic character. Recently, Heim made a cytological observation basing on a Mexican new species *M. limpidum* and proposed the monotypic family Myxomycidiaceae situated between Protoclavariales and Aphyllophorales. The writer should like to recognize this family.

From phylogenetic point of view, it seems logical to take this genus derived from such a member of the Dacrymycetales as *Dicellomyces* which is provided with two short sterigmata and hypobasidium, although this is parasiting on the leaves of *Arundinaria* and has the pulvinate appearance. Among the species of *Myxomycidium*.

M. guianense	*M. nodosum*	*M. asahimontanum*	*M. yakusimense*
lanceolate, stalked	lanceolate, stalked	globose or citriform, stalked	lenticular, discoid, stalked
10–30 mm	10–30 mm	4–6 mm	5–7 mm
milky white—ochraceous	greenish—ochraceous	lemon—yellow	hyaline with yellow stalk
−	+	+	+
15–23×4.5–5.5 μ	16.5–25.5×4.5 μ	50–55×3–5 μ	50–66×6–7 μ
4	4	4	4
2.5–4 μ	5.5–9 μ	2–5 μ	15–30 μ
5.5–6.5×2.5–3.5 μ	5–6×3–3.5 μ	5–6×2.5–3 μ	8–11×4–5 μ
British Guiana	Tennessee	N. Japan	S. Japan

of *Myxomycidium* such a species as *M. limpidum* seems to be most primitive one because of sessile fruitbody and two sterigmata on basidium.

Through two or four sterigmated type as *M. pendulum* and *M. flavum*, those species, which have four sterigmata on basidium and provided with clamp-connections on hyphae, are supposed to have been derived. The last group might have been progressed in some groups of the Clavariaceae. After all, the genus *Myxomycidium* is in the important position connecting Heterobasidiomycetes and Homobasidiomycetes.

As shown in the distribution map of *Myxomycidium* (fig. 1), this is the Eastern Asiatic -Middle American type connected by Australian element in Pacific region. Accordingly, in future, some species of this genus will be found in Southern Pacific region and South East Asia. It is very interesting that *M. asahimontanum* was found in so far region as northern part of Japan.

Key to the species

1 (Fruitbodies sessile, basidia with 2 sterigmata..........................*M. limpidum*
  (Fruitbodies stalked 2

2 (Basidia with 2–4 sterigmata, destitute of clamp-connection 3
  (Basidia with 4 sterigmata 4

3 Fruitbodies hyaline or so, basidia and spores small.................*M. pendulum*
  Fruitbodies clear-yellow, basidia and spores larger ....*M. flavum*
4 Fruitbodies large, lanceolate..5
  Fruitbodies small, not lanceolate...6
5 Fruitbodies milky white, whithout clamp................................*M. guianense*
  Fruitbodies greenish, with clamp ....*M. nodosum*
6 Fruitbodies elongated, lemon-yellow, sterigmata not so long, spores small ... .*M. asahimontanum*
  Fruitbodies not elongated, sterigmata very long, spores larger...*M. yakusimense*

Myxomycidium asahimontanum Y. Kobayashi, sp. nov. (Fig. 2–3, Pl. XVII).

Fructificationes gregariae, pendulae, stipitatae, pellucidae, mucilagineo-gelatinosae, viscidae. Stipes delicatus, ca 1×1 mm, luteus. Pileus globosus, citriformis aut fusiformis, 3–5 mm longus, 1.5–2.5 mm latus, e hyphis 1.5–4 μ crassis, tenuiparietalibus ramosis septatis frequenter "clamp" distinctis compositus, superficie laevis pallide citrinus, omnino hymeniis tectus. Basidia longissima 50–55 μ longa 3–5 μ crassa, apice capitata, frequenter basi nodulosa; sterigmatis 4, non elongatis, 2–5 μ longis. Basidiosporae ovoideae vel oblongae 5–6(7)×2.5–3 μ, subinaequilaterales apiculatae, hyalinae.

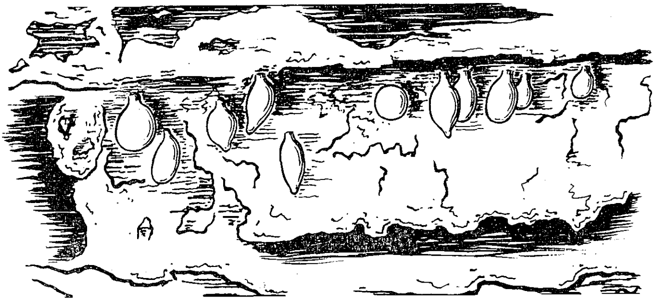

Fig. 2. Habitat of *Myxomycidium asahimontanum*.

Hab. On decaying trunk of *Fagus crenata*, along valley river, about 10 km north-east from Tokuami, Mt. Ooasahi, the Asahi Mountain Range, Yamagata Pref. (Sept. 6, 1960 -Type in Herb. Nat. Sci. Museum, Tokyo).

The stalk is distinct in spite of delicate and deeper coloured than main part of fruitbody. The basidia is extraordinarily elongated, remarkably proliferate at base and provided with nodule in the middle or lower part, in which the karyogamy is supposed to be taken place. Fruitbody is almost watery and easily drops off whenever it is touched or after its maturity.

Literatures

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摘　　要

1901年にタスマニヤ島で採集の菌に基き，この新属が設けられたが子実体は寒天質半透明で白木耳などを含む異担子菌類の様相を呈し，担子基の形態はホウキタケ科などを含む同担子菌類の特徴を有する点から，その分類学上の位置に関しては色々と論議のまとになっている。私はこの菌の担子基において重相の核が融合する位置と，その結果出来た複相核が減数分裂する位置が異り，形態的にも原担子基状の膨大部があることを重視し，これをベニキクラゲ科より由来した新科 (Heim 氏提唱) を代表するものとし，同担子菌類のホウキタケ科に連る位置にあるものと考える。東洋では屋久島産に次ぐ第2の記録であり，合せて7種が本属に記載せられたことになる。そして北米東部から中南米，タスマニヤを経て東洋にまで分布することになる。かような分布型のものは菌類に少くない。しかしかような菌学上の珍菌が山形県朝日山中にに飛びはなれて発見されたことは驚異に位する。

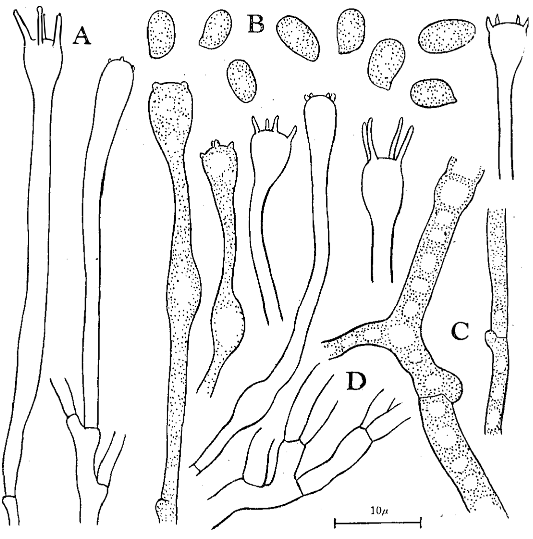
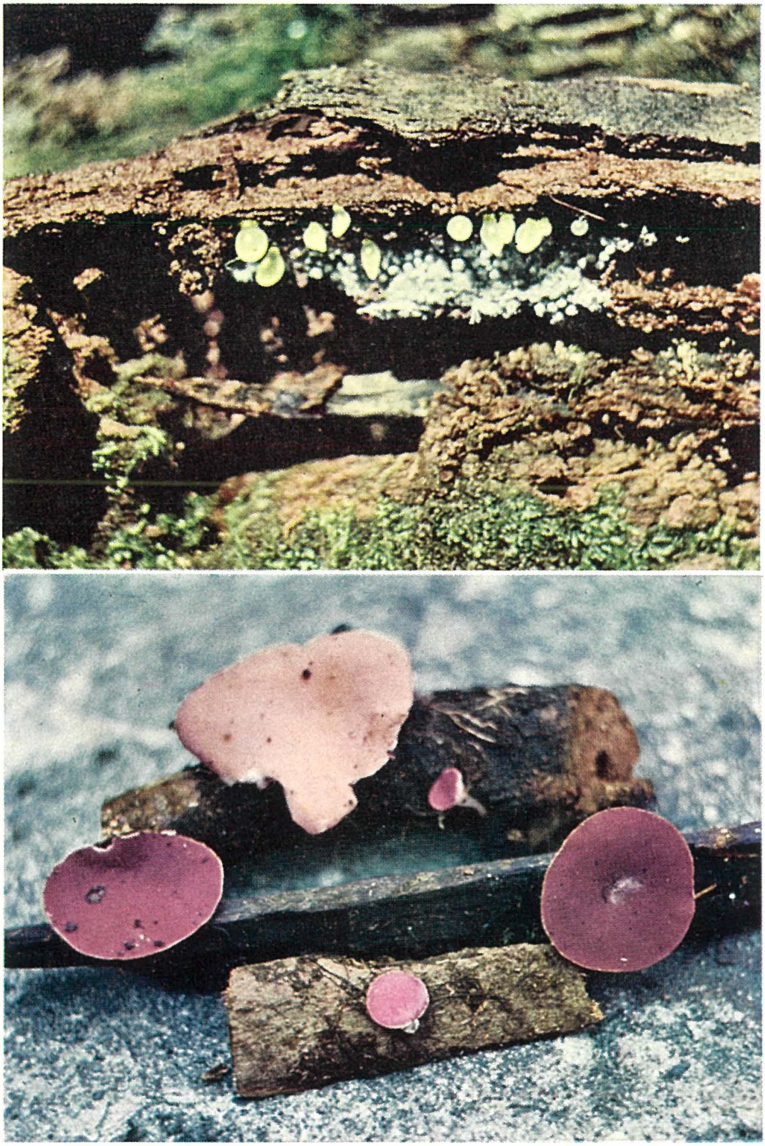


Fig. 3. Basidia and basidiospores of *Myxomycidium asahimontanum*. A. Basidia. B. Basidiospores. C. Clamp-conections of hyphae. D. Proliferating basal part of basidia.



Y. Kobayasi: On *Myxomycidium*